



UNITED STATES PATENT AND TRADEMARK OFFICE

col

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,134	05/09/2001	Frank Victor Kowalski	FVK01US	7257

7590 08/24/2005

Steven J Shattil
4980 Meredith Way #201
Boulder, CO 80303

EXAMINER

LI, SHI K

ART UNIT	PAPER NUMBER
----------	--------------

2633

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,134

Applicant(s)

KOWALSKI, FRANK VICTOR

Examiner

Shi K. Li

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*; 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites the limitation "at least first time-domain portion or the at least second time-domain portion with at least one time offset equal to at least one signal period of the at least one repetitive waveform" in lines 13-15 of the claim. The limitation is not in the original claim or supported by the specification as originally filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

3. Claim 15 recites the limitation "the at least one time-offset step adapted to provide the time-domain samples with at least one time offset equal to at least one signal period of at least one of the repetitive waveforms" in lines 8-10 of the claim. The limitation is not in the original claim or supported by the specification as originally filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

4. Claim 21 recites the limitation "each of the plurality of repetitive waveforms having at least one predetermined period and a time offset equal to or greater than the at least one predetermined period" in lines 8-10 of the claim. The limitation is not in the original claim or

Art Unit: 2633

supported by the specification as originally filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

5. Claim 28 recites the limitation "the at least one repetitive waveform having at least one predetermined period and a time offset equal to or greater than the at least one predetermined period" in lines 9-11 of the claim. The limitation is not in the original claim or supported by the specification as originally filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

6. Claim 35 recites the limitation "a time-offset system coupled to the combiner adapted to provide at least one of the samples with at least one time offset equal to or greater than the at least one predetermined period of the repetitive waveforms" in lines 10-12 of the claim. The limitation is not in the original claim or supported by the specification as originally filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

7. Claim 42 recites the limitation "the at least one time-offset step adapted to provide the time-domain portions with at least one time offset equal to at least one signal period of the at least one repetitive waveform" in lines 11-13 of the claim. The limitation is not supported by the specification as originally filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

8. Claim 43 recites the limitation "a time-offset system coupled to the combiner adapted to provide at least one of the samples with at least one time offset equal to or greater than the at least one predetermined period of the plurality of repetitive waveforms" in lines 9-11 of the claim. The limitation is not in the original claim or supported by the specification as originally

Art Unit: 2633

filed. Therefore, the limitation is considered as new subject matter. The new subject matter is ignored in the following rejection.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-13, 15-17 and 19-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Roberts et al. (U.S. Patent 6,313,932 B1).

Regarding claims 1, 35 and 42-43, Roberts et al. discloses in FIG. 7 an optical transmission system. FIG. 1 teaches a receiver comprising a coupler for receiving an optical signal and splitting it into two parts along two arms 82 and 83, a delay for delaying signal along one arm for a predetermined time period with respect to signal along the other arm, a coupler 68 for combining signals from the two arms.

Regarding claim 15, Roberts et al. teaches in col. 10, lines 5-10 different delay period.

Regarding claim 2, FIG. 7 suggests a waveguide between transmitter and receiver.

Regarding claim 3, Roberts et al. teaches in FIG. 1, through FIG. 5 to use WDM technique for generating a plurality of repetitive waveforms.

Regarding claim 4, Roberts et al. teaches in col. 10, lines 5-10 different delay period.

Regarding claim 5, Roberts et al. teaches in FIG. 2 continuous spectrum and a comb of spectrum lines.

Art Unit: 2633

Regarding claim 6, transmission system inherently has noise.

Regarding claim 7, Roberts et al. teaches in FIG. 2(D) a plurality of information signals.

Regarding claim 8, Roberts et al. teaches in FIG. 6A phase modulators 68.

Regarding claims 9 and 16, Roberts et al. teaches in FIG. 7 an interferometry step where one portion is delayed and combined with another portion.

Regarding claim 10, Roberts et al. teaches in col. 11, lines 5-39 that the receiver receives signal that has been delayed with di.

Regarding claims 11-12, 19-20 and 37-38, Roberts et al. teaches in FIG. 8 to provide various delay in the receiver. When the delay matches that of the transmitter, the combining step combines consecutive portions. When the delay does not match that of the transmitter, the combining step combines non-consecutive portions.

Regarding claims 13 and 39-41, Roberts et al. teaches in FIG. 7 a Mach-Zehnder interferometer structure.

Regarding claims 17 and 36, Roberts et al. teaches in FIG. 4 an array of receiving elements.

Regarding claims 21, 28 and 44, Roberts et al. teaches in FIG. 7 transmitter with modulator 4 and delay element 67.

Regarding claims 22 and 29, Roberts et al. teaches in FIG. 6A phase modulators 68.

Regarding claims 23-24 and 30, transmission system inherently has noise. Roberts et al. teaches in FIG. 2(B) frequency-offset between components.

Regarding claims 25 and 31, Roberts et al. teaches in FIG. 1 and FIG. 2 to generate a plurality of channels of similar bandwidth.

Art Unit: 2633

Regarding claims 26 and 32, Roberts et al. teaches in col. 10, lines 5-10 different delay period.

Regarding claims 27 and 34, Roberts et al. teaches in FIG. 2 continuous spectrum and a comb of spectrum lines.

Regarding claim 33, Roberts et al. teaches in FIG. 2(B) frequency-offset between components.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 14, 18 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts et al. (U.S. Patent 6,313,932 B1) in view of Smith (U.S. Patent 4,959,826).

Roberts et al. has been discussed above in regard to claims 1-13, 15-17 and 19-44. The difference between Roberts et al. and the claimed invention is that Roberts et al. does not teach a frequency shifter. Smith suggests in FIG. 1 to use a frequency shifter to send a carrier so that the carrier does not interfere with the signal. One of ordinary skill in the art would have been motivated to combine the teaching of Smith with the optical transmission system of Roberts et al. to frequency shift the delayed copy of the signal so that the delayed copy does not interfere with the undelayed copy. To recover the delayed copy, a frequency shift in the opposite direction is needed as taught by Smith in col. 6, lines 59-62. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a frequency shifter in the

Art Unit: 2633

transmitter for shifting the delayed copy of the signal and include a frequency shifter in the receiver for shifting the undelayed copy in the opposite direction for uncovering the original signal, as taught by Smith, because this approach minimizes interference between the repetitive signals.

Response to Arguments


13. Applicant's arguments filed 11 April 2005 have been fully considered but they are not persuasive. The Applicant's arguments are based on new subject matter that is not supported by the specification as originally filed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600



8/7/05

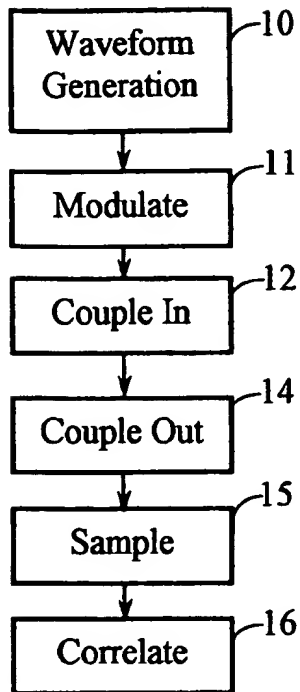


FIG. 1

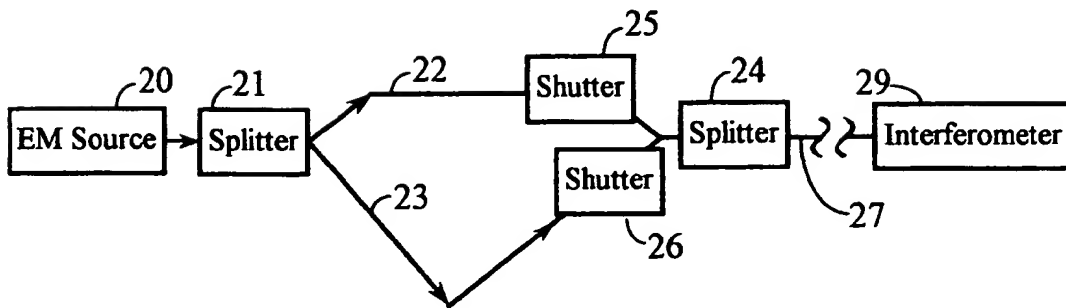


FIG. 2



sk 8/17/07

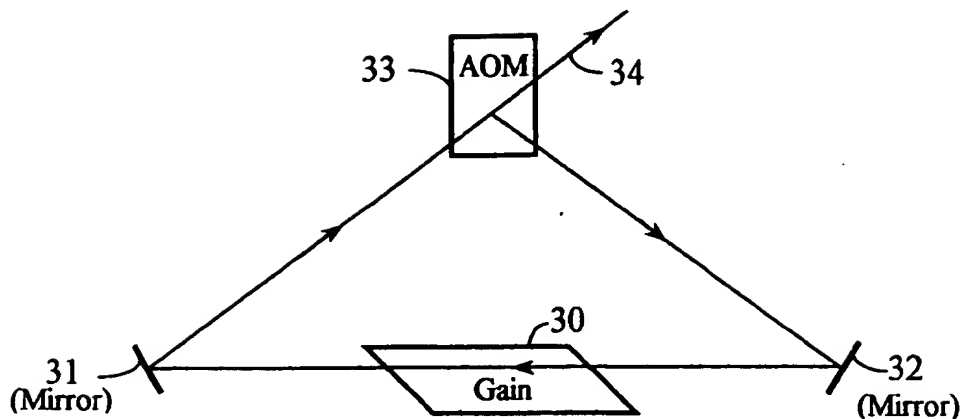


FIG. 3

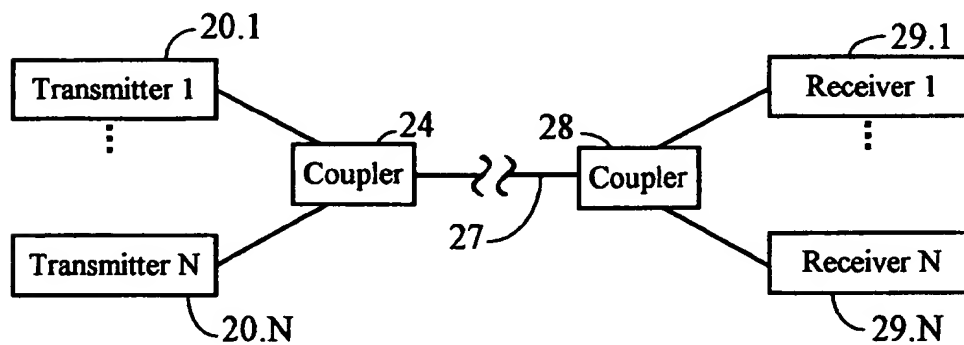


FIG. 4

8/17/03

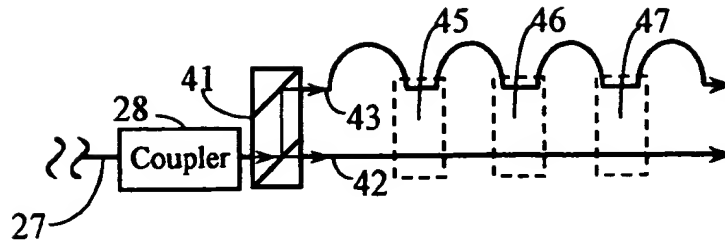


FIG. 5

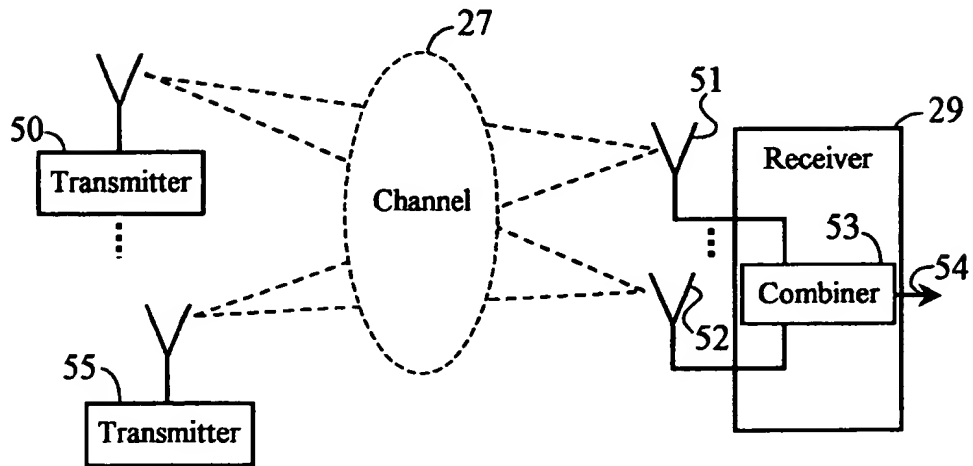


FIG. 6